

## CLAIMS

We claim:

1. A recombinant nucleic acid, capable of hybridizing to a nucleic acid comprising a nucleic acid sequence selected from the group consisting of the nucleic acid sequences set forth in SEQ ID NOs:1, 3, and 5, or complements thereof.
2. A recombinant nucleic acid, comprising a nucleic acid sequence having at least about 90% identity to a nucleic acid sequence selected from the group consisting of the nucleic acid sequences set forth in SEQ ID NOs:1, 3, and 5 or complements thereof.
3. A recombinant nucleic acid according to claim 1 or 2, wherein said nucleic acid comprises a nucleic acid sequence selected from the group consisting of the nucleic acid sequences set forth in SEQ ID NOs:1, 3, and 5 or complements thereof.
4. A recombinant polypeptide, comprising an amino acid sequence having at least about 95% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4, and 6.
5. A recombinant polypeptide according to claim 4, further comprising an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4, and 6.
6. A recombinant polypeptide, comprising an amino acid sequence which is encoded by the nucleic acid of claim 2.
7. A method for screening for a candidate bioactive agent capable of modulating phosphorylation of JNK, comprising
  - i) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant MINK3 nucleic acid encoding a MINK3 protein and a JNK protein; and
  - ii) determining the phosphorylation of said JNK protein in the presence of candidate agent;wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, wherein said encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4 and 6, wherein said encoded MINK3 protein will phosphorylate said JNK protein in the absence of said candidate bioactive agent, and wherein a decrease in the phosphorylation of said JNK protein in the presence of said candidate bioactive agent indicates that said candidate bioactive agent is capable of modulating phosphorylation of JNK.
8. A method for screening for a candidate bioactive agent capable of modulating mammalian ERK phosphorylation, comprising:

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i) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant MINK3 nucleic acid encoding a MINK3 protein and an ERK protein; and  
ii) determining the phosphorylation of said ERK protein in the presence of candidate agent;  
5 wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, wherein said encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4 and 6, wherein said encoded MINK3 protein will phosphorylate said ERK protein in the absence of said candidate bioactive agent, and wherein a decrease in the  
10 phosphorylation of said ERK protein in the presence of said candidate bioactive agent indicates that said candidate bioactive agent is capable of modulating phosphorylation of ERK.

9. A method for screening for a candidate bioactive agent capable of modulating mammalian JNK activity, comprising:  
i) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant  
15 MINK3 nucleic acid encoding a MINK3 protein and an JNK protein; and  
ii) determining the activity of said JNK protein in the presence of candidate agent;  
wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, wherein said encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth  
20 in SEQ ID NOs:2, 4 and 6, wherein said encoded MINK3 protein will activate said JNK protein in the absence of said candidate bioactive agent, and wherein a decrease in the activity of said JNK protein in the presence of said candidate bioactive agent indicates that said candidate bioactive agent is capable of modulating JNK activity.

10. A method for screening for a candidate bioactive agent capable of modulating mammalian  
25 ERK activity, comprising:  
i) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant MINK3 nucleic acid encoding a MINK3 protein and an ERK protein; and  
ii) determining the activity of said ERK protein in the presence of candidate agent;  
wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, wherein said  
30 encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4 and 6, wherein said encoded MINK3 protein will activate said ERK protein in the absence of said candidate bioactive agent, and wherein a decrease in the activity of said ERK protein in the presence of said candidate bioactive agent indicates that said candidate bioactive  
35 agent is capable of modulating ERK activity.

11. A method for screening for a candidate bioactive agent capable of modulating proliferation in a mammalian cell, comprising:  
a) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant

MINK3 nucleic acid encoding a MINK3 protein; and

b) determining the effect on the cell in the presence and absence of said candidate bioactive agent;

wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, and wherein said encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4 and 6.

12. A method for screening for a candidate bioactive agent capable of modulating growth factor induced-ERK activation in a mammalian cell, comprising:

a) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant MINK3 nucleic acid encoding a MINK3 protein; and  
b) determining ERK activity in the presence and absence of said candidate bioactive agent;

wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, and wherein said encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4 and 6.

13. A method for diagnosing a mammalian cell proliferation disorder, comprising sequencing at least a portion of at least one MINK3 gene encoding a gene transcript comprising a nucleic acid sequence selected from the group consisting of the nucleic acid sequences set forth in SEQ ID NOs:1, 3, and 5 and determining the sequence of said MINK3 gene or a portion thereof.

14. A medicament for the treatment of a mammalian cell proliferation disorder, comprising a MINK3 antisense nucleic acid comprising a nucleic acid sequence complementary the nucleic acid sequence set forth by nucleotides 2804-3187 in SEQ ID NO:1.

15. A method for screening for a candidate agent capable of modulating cell survival, comprising:

a) contacting a candidate bioactive agent to a mammalian cell comprising a recombinant MINK3 nucleic acid encoding a MINK3 protein; and  
b) determining the ratio of the amount of cleaved Rb to the amount of native Rb in the presence and absence of candidate agent;

wherein said recombinant MINK3 nucleic acid is expressed in said mammalian cell, and wherein said encoded MINK3 protein comprises an amino acid sequence having at least about 90% identity to an amino acid sequence selected from the group consisting of the amino acid sequences set forth in SEQ ID NOs:2, 4 and 6.